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APPLICATION NUMBER: 60/551,268

FILING DATE: *March 08, 2004*

RELATED PCT APPLICATION NUMBER: *PCT/US05/07261*



Certified by

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for Intellectual Property
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030804

21861 U.S. PTO

PTO/SB/16 (01-04)

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. ER 715499975

15364 U.S. PTO
60/551268

030804

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Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
ANTENNA COVER					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
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ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages 1		<input type="checkbox"/> CD(s), Number _____			
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets 1		<input type="checkbox"/> Other (specify) _____			
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE Amount (\$)	
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees.				80.00	
<input type="checkbox"/> The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: _____					
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted,

[Page 1 of 2]

Date 8 MARCH 2004

SIGNATURE

TYPED or PRINTED NAME DAVID A. BOLTON

TELEPHONE 817-821-3956

REGISTRATION NO. 41627

(if appropriate)

Docket Number: _____

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **DAVID H. McFADDEN**

Serial Number: **TO BE ASSIGNED**

Filed: **8 March 2004**

For: **ANTENNA COVER**

TRANSMITTAL

Box: **PROVISIONAL PATENT APPLICATION**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Please file the following enclosed documents in the subject application:

1. This Transmittal with Certificate of Express Mail (2) pages;
2. Provisional Application Cover Sheet (1) page
3. Provisional Application Text (1) Page
4. Drawing (1) page
5. Assertion of Entitlement to Small Entity Status (2) pages;
6. Certificate of No Foreign Filing (2) pages;
7. Our check in the amount of \$80.00 to cover the Provisional Application Filing Fee; and
8. Our return postcard which we would appreciate you date stamping and returning to us.

EXPRESS MAIL NO. ER 715499975 US

I hereby certify that this paper or fee is being deposited with the United States Postal Service as Express Mail "Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated below and is addressed to: Provisional Patent Application Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Date of Deposit: March 8, 2004

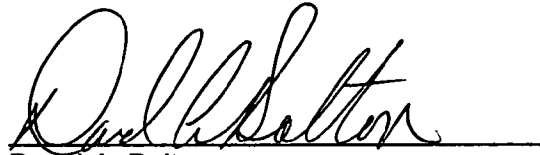
By: David A. Salton

Please conduct all correspondence in the above matter with:

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Respectfully submitted,

March 8, 2004
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ATTORNEY FOR APPLICANT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **DAVID H. McFADDEN**

Serial Number: **TO BE ASSIGNED**

Filed: **8 March 2004**

For: **ANTENNA COVER**

**CERTIFICATION UNDER 35 USC SECTION 122(b)(2)(B)(i) OF NO FOREIGN
FILINGS**

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Applicant hereby certifies (through counsel) that the invention disclosed in the above-identified application filed herewith has not, and will not, be the subject of an application filed in another country, or under a multi-lateral international agreement, that requires publication of applications eighteen (18) months after filing; therefore Applicant requests that the subject application not be published under 35 USC Section 122(b)(1).

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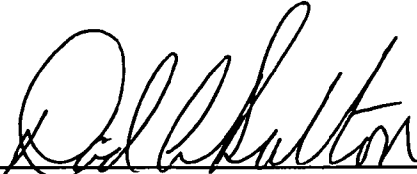
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Date of Deposit: March 8, 2004

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ATTORNEY FOR APPLICANT

Background:

Global Appliance Technologies rapid cook oven combines a unique configuration of microwave energy and airflow (convection) introduction into the cook chamber and to the food product. The microwave kit consists of standard waveguides positioned along the left and right hand cavity walls. The top covers (forming portions of cook chamber walls) of the waveguides are fitted with slotted antenna's. The slots are rectangular holes in the metal waveguides that are roughly 2.39 inches long by 0.3 inches in width (rounded or radius ends).

As these slots are open to the cooking chamber environment, they must be sealed to prevent food particles, water, oil, cleaning agents or other substances from being deposited in the waveguide. Contamination of the waveguide interior by such substances can reduce the life of the magnetron tube, reduce the useful power produced by the tube, and/or increase heat loss from the oven.

For the current Alpha and Beta prototypes, the same waveguide design is used, that is, 3 slot antennas per side being supplied by a standard 2.45GHz magnetron tubes producing a maximum power level for the oven of around 1950 watts (delivered to the food) or about 925 watts per tube

Invention:

For Global's commercial oven, which has a maximum operating temperature of around 500 degrees F, a very durable and inexpensive slot antenna cover has been developed. The slot antenna covers (see below) are configured to cover the right and left slot antennas. These covers are adhered to the surrounding stainless steel using high temperature silicone rubber (RTV) sealant. This sealing approach creates high temperature watertight seal between the cover and the surrounding metal.

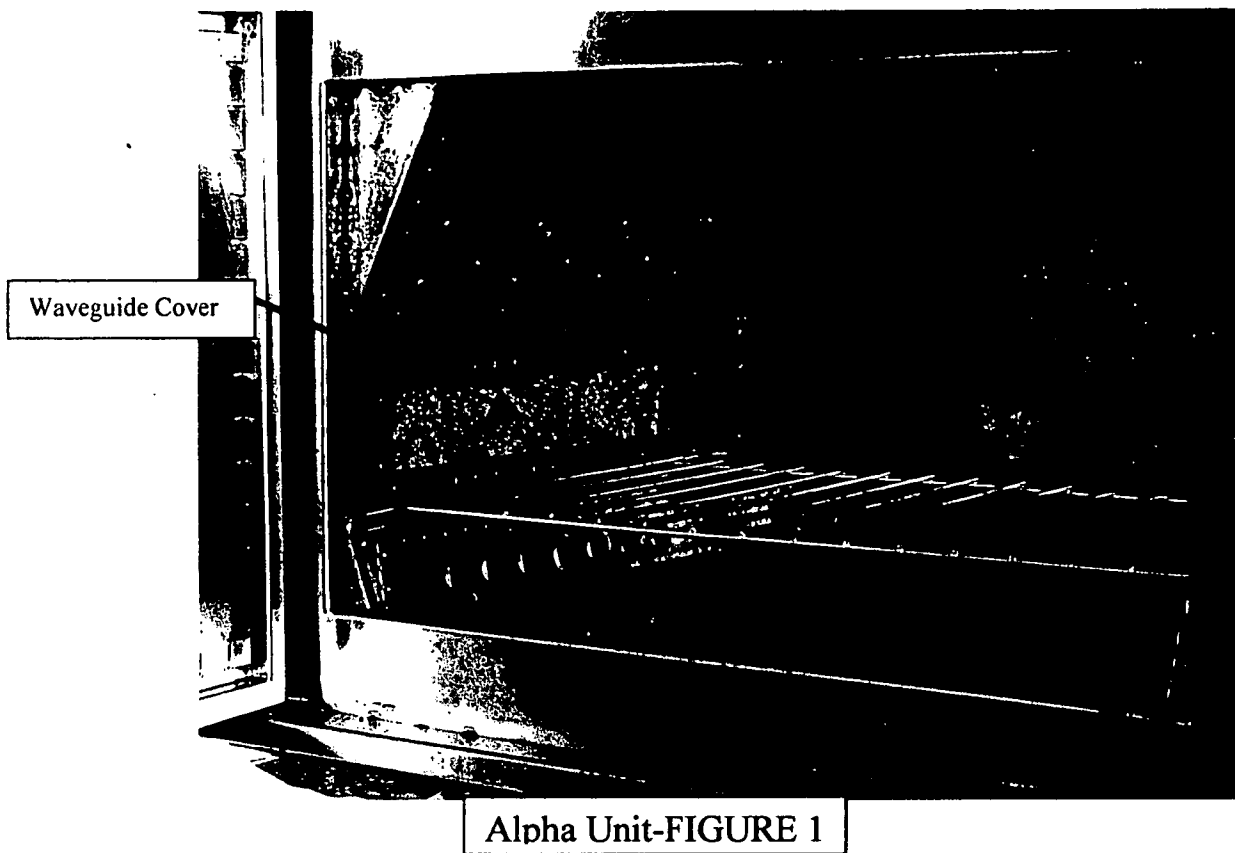
The cover material must be compatible with high temperature operation, must be of low loss characteristics relative to microwave transmission, easily cleaned, durable, and inexpensive. For good microwave compatibility, materials with a dielectric constant less than 6 and a loss tangent less than .2 are needed. Such materials must be thin, less than .015 inches thick, and be suitable for gluing using silicone rubber (RTV).

A Teflon(PTFE)/fiberglass fabric produced by Saint Gobain (ChemFab material 10 BT) which has one side treated to accepted silicone rubber and is 0.01 inches thick has been integrate into the oven design. This material has little impact on the microwave characteristics of the oven, that is, the Smith chart for the waveguide/antenna impedance (for slot angles greater than 17 degrees) with and without the cover are roughly the same. Water rise experiments are nearly the same. At shallow slot angles, the covers do have a small negative impact on microwave performance.

The same material with a 0.002 layer of silicone rubber bonded to the PTFE/fiberglass fabric had measurable negative impact on the impedance (Smith Chart) of the microwave kit. This thin rubber layer in front of the slots pulled the microwave circuit impedance to less favorable set of conditions relative to the desired operating point of the tube. The iron filler used in the high temperature silicone rubber layer was the source of this performance problem.

Thin mica sheets (0.015 inches) were also tried. They produced good performance, but durability and cleaning were concerns.

I claim an apparatus having all the features shown in FIGURE 1.



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **DAVID H. McFADDEN**

Serial Number: **TO BE ASSIGNED**

Filed: **8 March 2004**

For: **ANTENNA COVER**

**ASSERTION OF ENTITLEMENT TO SMALL ENTITY STATUS
UNDER 37 C.F.R. §1.27 (c)**

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Pursuant to 37 C.F.R. 1.27 (2) (c) (i), the undersigned hereby asserts that **GLOBAL APPLIANCE TECHNOLOGIES, INC.** owner by assignment of the entire right, title, and interest in the subject application, is a small entity as defined in 37 C.F.R. § 1.9(d) and is entitled to small entity status for purposes of paying reduced fees under Section 41 (a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the subject invention.

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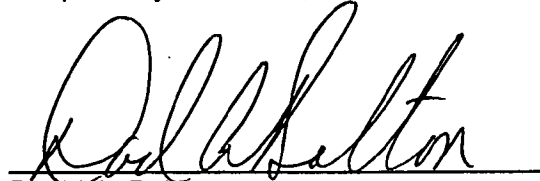
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Date of Deposit: March 8, 2004

By: David H. McFadden

March 8, 2004
Date

Respectfully submitted,



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